Environmental Assessment for the Proposed Suppression of Brown and Brook trout in the East Fork Bull River

Developed Pursuant to the

Clark Fork Settlement Agreement, Appendix C:
Fish Passage/Native Salmonid Restoration Plan

for the

Clark Fork Project (FERC No. 2058)

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1. INTRODUCTION

1.1 Introduction and Background

The following Environmental Assessment is a summary of the purpose and need for the proposed non-native fish species suppression program for the East Fork Bull River (EFBR), and an examination of other possible alternatives for addressing this identified threat to the native fish species in the EFBR, or possibly other spawning and rearing areas in tributaries to Cabinet Gorge Reservoir (Reservoir).

Avista Corporation (Avista), as part of a Settlement Agreement (Avista 1999) for the re-licensing of its Noxon Rapids and Cabinet Gorge Dams, has implemented a Fish Passage/Native Salmonid Restoration Plan (NSRP) for the lower Clark Fork River (Kleinschmidt and Pratt 1998). The NSRP was developed to provide a framework for step-wise examination of issues such as habitat and fish passage influencing restoration of native bull and cutthroat trout to the lower Clark Fork River and its tributaries. The NSRP detailed various conditions that could potentially affect the success of restoration actions. One of the factors identified was the impact non-native fish species, such as brown and brook trout, have on native fish species, especially bull trout, through competition for food and habitat, hybridization, and predation on various life stages. The NSRP detailed four major components for evaluating the potential impacts of non-native fish and developing programs to limit impacts where warranted. These components were to be completed in a phased approach, which included:

- Determining the potential impact of non-native fish species on native fish production and understanding methods to minimize these impacts (completed with the document by Kleinschmidt 2001);

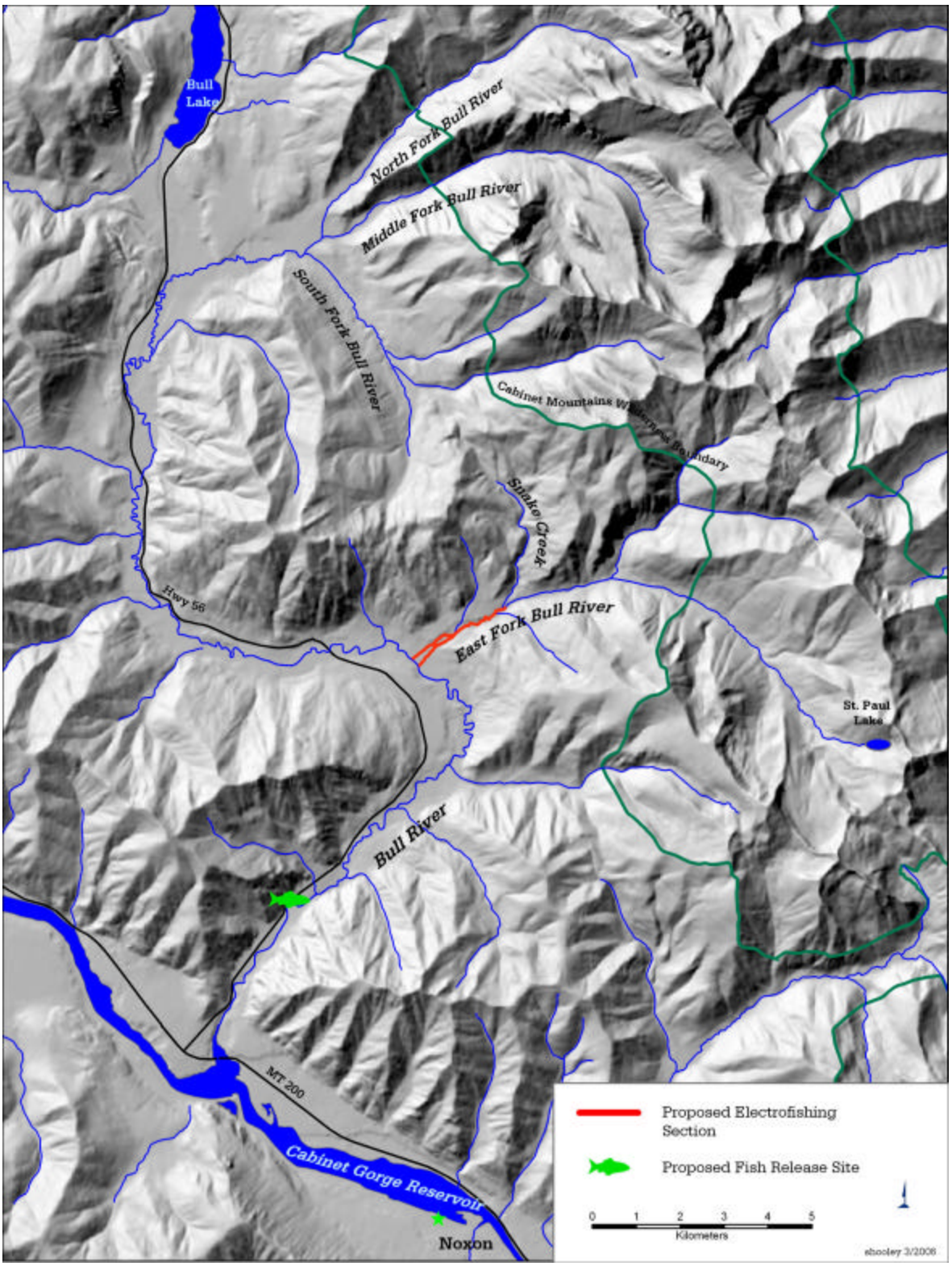
- Identifying locations where impact from non-native fish species is likely to be greatest or of significant importance to restoration efforts for Cabinet Gorge Reservoir and its tributaries (completed with the document by Kleinschmidt 2001);

- Developing specific suppression programs for locations of interest (conceptually identified and proposed in this document); and

- Developing and implementing long-term suppression measures and monitoring programs (conceptually identified in this document, but explained in detail under an associated study plan, Lockard and Moran 2006).

Originally proposed in 2003, the project involved removing non-native brown and brook trout in the lower 1.8 miles of the East Fork Bull River for the purpose of increasing the abundance of the native fish (Figure 1). An Environmental Assessment was released in April 2003, and MFWP issued a Decision Notice, pursuant to the Montana Environmental Policy Act (MEPA), on the project in September 2003 (Moran 2003a). The Decision Notice acknowledged that there had been excellent public involvement in the MEPA analysis and it addressed 12 major issues raised in opposition to the proposal. The Notice stated that there was a need to maintain

Figure 1. General location map showing the area proposed for non-native fish suppression and the area in the lower Bull River where trout removed from the East Fork Bull River are proposed to be released.



recreational fishing opportunities in the area, and that numerous valid concerns had been raised about the proposal. The Notice also recognized public support for the project and stated that, "there appear to be real and increasing threats to the long-term persistence of cutthroat and bull trout in the East Fork Bull River and a reasonable likelihood of success in restoring their health". The Decision was to modify the original proposal to gather more baseline data and to test some of the suppression techniques over a two year period. Avista and the fisheries agencies have cooperatively gathered the additional baseline data and re-proposed a revised project for implementation during the 2006 to 2013 time frame. A summary of the additional baseline data and its relevant implications to the revised proposed action is contained in Attachment A.

1.2 Authorities and Direction

Avista is required to implement the NSRP, which calls for assessment of potential non-native fish species interactions with native fish species and corrective actions (i.e. suppression) if necessary, as part of its re-licensing agreement as mandated by the Federal Energy Regulatory Commission (FERC). The FERC order also recognized the Management Committee (Avista 1999), which oversees and approves Avista's mitigation actions. The Management Committee is comprised of 27 entities representing Avista, federal, state (Montana and Idaho) and county governments and agencies, Indian tribes, and non-governmental organizations. The Management Committee must approve plans and Avista funding for any non-native species suppression activities. Montana Fish, Wildlife and Parks (MFWP) has management authority over fishes in Montana and must approve Avista's request to conduct any fish suppression and transport activities. The U.S. Fish and Wildlife Service (USFWS) has authority over actions that potentially affect species (bull trout) listed under the Endangered Species Act (ESA) in the project area.

Direction for this proposed action has been provided by Avista staff biologists and technicians and the Aquatic Implementation Team (AIY), a four-member team of fisheries biologists, representing Avista, MFWP, Idaho Department of Fish and Game (IDFG), and the USFWS, which collaboratively directs implementation of Avista's fish mitigation programs. The Water Resources Technical Advisory Committee, which is comprised of representatives appointed by the Management Committee, including the Bull River Watershed Council, which is comprised of local private landowners, has provided additional input and direction.

1.3 Purpose and Need

The fundamental premise of this proposed action is that capture and removal of non-native fish from areas where they are recognized as having the greatest negative impact on native fish will be beneficial to these native species' populations and will enhance the probability of success of other native species enhancement programs. Assessing the potential impact of non-natives species on native fish production and understanding the methods to minimize these impacts was completed in the Kleinschmidt (2001) report. The report's review of the Cabinet Gorge reach bull trout population stated that bull trout could be considerably impacted at various life stages by non-native species in each habitat type where bull trout reside. Of the non-native species, brown and brook trout appear to pose the greatest threat to bull trout in tributaries to the

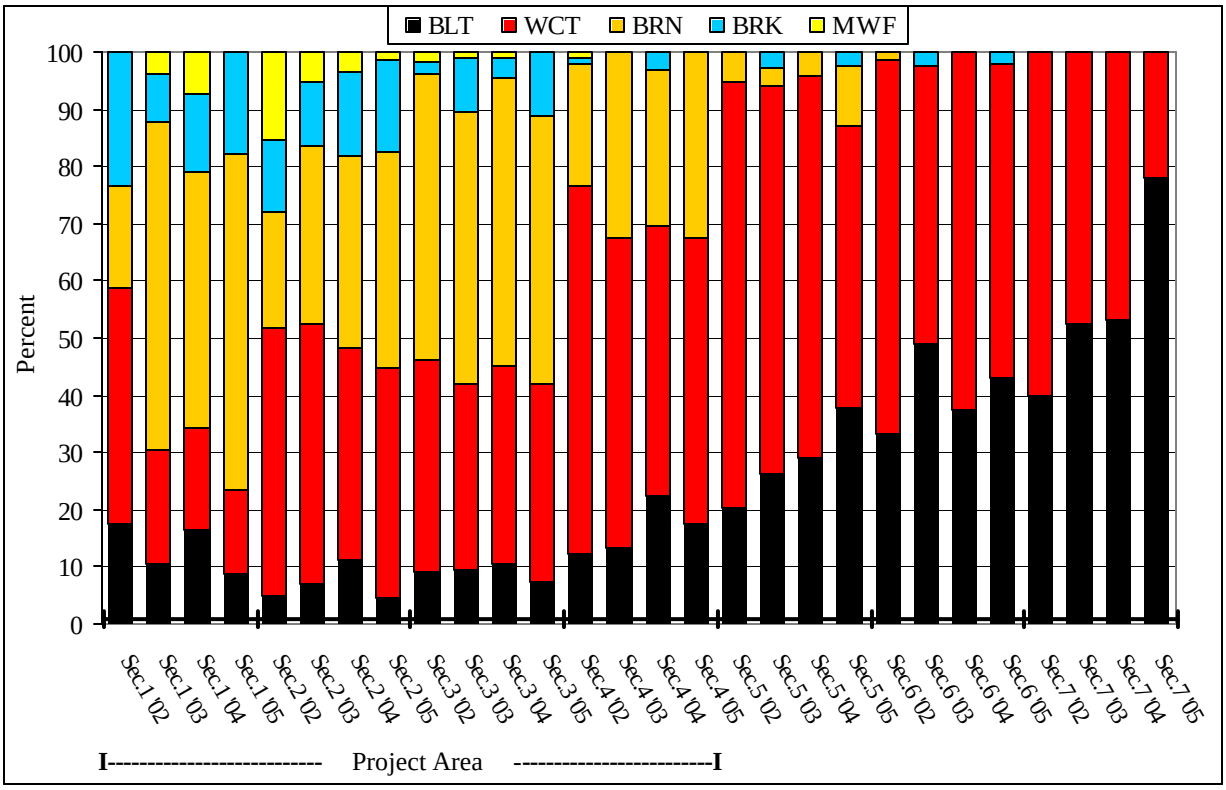
Reservoir. Brown trout behave more like bull trout than any other non-native species and likely have significant impacts in tributaries where they coexist through competition for resources at both the juvenile and adult life stage, superimposition of redds, and predation of bull trout juveniles. Hybridization of male brook trout with female bull trout is likely the greatest threat that brook trout has on bull trout. Suspected hybrids (based on physical characteristics) of these species have been observed in the Bull River and recent genetic analysis has confirmed bull x brook trout hybridization in the South Fork Bull River, and other nearby streams.

In addition to the impacts of non-native fish species on bull trout, it has been suggested that fall-spawning brown, and in particular brook trout (Shepard et al. 2001), often displace the later emerging (and smaller) juveniles of cutthroat trout, a species which spawns in the spring. This suspected competitive advantage at the juvenile life stage has been implicated as a major factor in the decline of westslope cutthroat trout, as is the earlier age of sexual maturity of brook trout compared to westslope cutthroat trout (Behnke 1992). Although previous fisheries work suggests that a viable population of rainbow trout does not exist in the Bull River drainage (WWP 1996, Lockard et al. 2002a), the potential impact of this non-native species on the westslope cutthroat trout population should be considered, as hybridization with rainbow trout has been identified as one of the principal reasons for the decline of genetically pure westslope cutthroat trout populations (Allendorf and Leary 1988, Behnke 1992). In light of this impact, and the possibility of encountering rainbow trout during future suppression activities, this species would be treated similarly as brown and brook trout when encountered.

The Kleinschmidt report (2001) indicated that one of the greatest potential threats to bull trout in the Cabinet Gorge Reach was the further expansion of brown trout in the EFBR, which has been recognized as the single most important spawning and rearing tributary for the federally listed (threatened) bull trout in the Cabinet Gorge reach of the lower Clark Fork River (Pratt and Huston 1993, WWP 1996). Previous and ongoing studies of the EFBR have confirmed some of these impacts are occurring in the form of healthy populations of non-native trout, principally brown trout (Lockard et al. 2002a, Katzman and Tholl 2003, Moran 2003b, Moran inprepsrstion), and super-imposition of brown trout redds on existing bull trout redds (Moran 2003c). The change in species composition progressing upstream along the EFBR as determined from sampling conducted on seven electrofishing from 2002 through 2005 is depicted below (Figure 2).

Removal of brook and brown trout will have an impact on the limited recreational fishery for these species in the EFBR. However, this loss should be mitigated by the proposed live-transport of catch-able sized (i.e. greater than 6 inches) fish from the EFBR to the lower Bull River. Additionally it is anticipated that the expected increase in westslope cutthroat trout within the EFBR in response to suppression activities would provide similar recreational fishing opportunities within a reasonable period of time.

Figure 2. Species' Percent Composition, by population estimates (fish/100 m), for the seven electrofishing sections as they progress upstream along the EFBR, from 2002 through Fish species abbreviations: BLT: bull trout; WCT: westslope cutthroat trout; BRN: brown trout; BRK: brook trout; MWF: mountain whitefish.



The specific suppression actions to be undertaken and the sites for these actions were developed during consultation between Avista, the two agencies with management authority (Montana Fish, Wildlife and Parks and U.S. Fish and Wildlife Service) for the fish in the Cabinet Gorge Reservoir reach, and private stakeholders and are covered in the respective study plan (Lockard and Moran 2006) which is available upon request. This study plan also details the criteria that would be used in judging the success of this project, and the experimental nature of this project, in terms of whether the project would proceed based upon meeting these criteria, is emphasized. As the principal implementer of the NSRP, Avista (with USFWS leadership) is proposing to begin non-native fish species suppression during the 2006 field season.

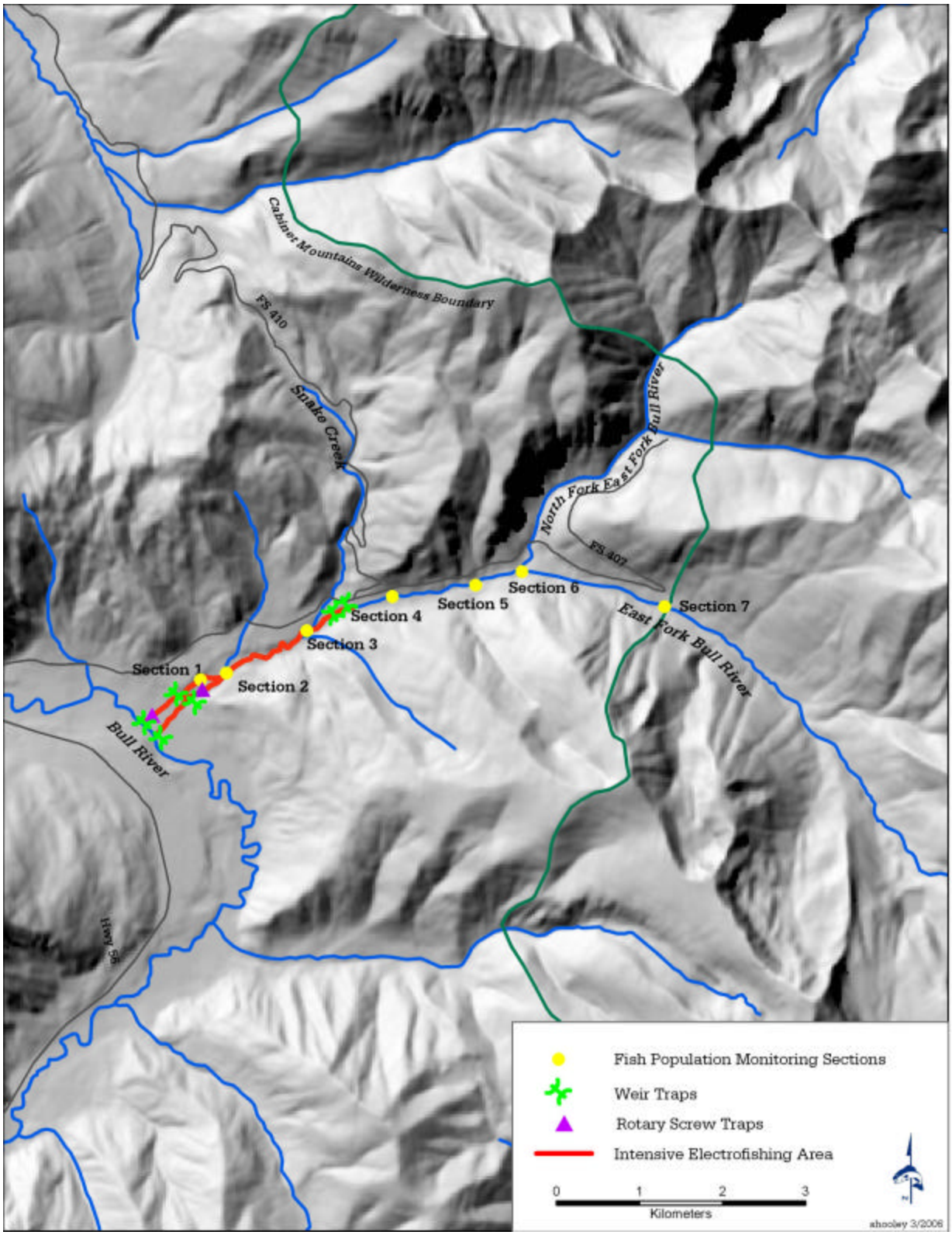
It should be noted that during development of this project other alternatives were considered but for various reasons were not presented in this Environmental Assessment. One of the alternatives considered was the use of piscicide (fish poison) for the removal of non-native fish. Although this technique has been widely used in other fish removal projects (Gresswell 1991, Rinne and Turner 1991, Harig et al. 2000), input from a concerned citizen group, in this instance the Bull River Watershed Council, convinced the agencies involved to abandon this alternative. During an earlier feedback period, the Bull River Watershed Council also expressed a desire for the recreational fishery mitigation component of this project to incorporate a mainstem Bull

River release site. Following a study that suggested exclusion of a large percentage of brown trout removed from the EFBR may be obtainable provided these fish were transported as far downstream in the Bull River drainage as is feasible (Lockard and Carlson 2005), this desire was accommodated. Use of this within-drainage release site will be monitored over the course of this study, largely through fish marking and weir recapture data, to further judge the appropriateness of this action. This further monitoring is necessary, as this alternative was previously deemed incompatible with the objectives of both this proposed action and other management objectives of the NSRP (Moran 2003a).

1.4 Project Site Description

The area for this proposed action encompasses the lower 1.8 miles of the EFBR, from its confluence with the Bull River to 0.3 miles above the mouth of Snake Creek (Figure 3). The fish community for the project site is represented by the data from electrofishing Sections 1 through 4 (see Figure 2). The Bull River is the largest tributary to Cabinet Gorge Reservoir. The preferred alternative would occur in the lower mainstem Bull River as the release site for catch-able sized brown trout removed from the EFBR is located approximately 2.5 miles above Cabinet Gorge Reservoir.

Figure 3. Map of the East Fork Bull River showing major tributaries, electrofishing monitoring sections, area of proposed intensive electrofishing suppression, and fish trap locations.



2. ALTERNATIVES

2.1 No Action Alternative

Under this alternative, current NSRP efforts would continue with no special efforts to remove brown and brook trout. This would result in no net reduction of the non-native fish species that have been shown to be negatively impacting the native species of the EFBR. The presence of brown and brook trout may make meaningful gains in other components of the NSRP difficult, if not impossible, to achieve. Furthermore, there is reason to believe that brown and brook could further displace bull and westslope cutthroat trout if left unchecked (Pratt and Huston 1993, Kleinschmidt 2001).

2.2 Electrofishing and Trapping Suppression with a lower Bull River release site (Preferred Alternative)

This alternative would use electrofishing and weir-type fish traps to capture non-native fish along the entire 1.8 miles of the lower EFBR. The major weir sites on the EFBR would be located 0.4 miles up from the mainstem Bull River and 0.3 miles above the mouth of Snake Creek (see Figure 3). The approximately 1.8 miles of the EFBR between the weirs would be subject to two electrofishing episodes from mid-July until August 31. Captured brook, brown and rainbow trout greater than 6 inches in length would be live-transported to the lower Bull River release site to offset lost recreational fishing opportunities. The total number of 6 inch or larger trout that would be transported is estimated to be roughly 500 brown and 100 brook trout during the first year of suppression (Lockard and Moran 2006). Fish smaller than six inches would be destroyed.

The suppression program as proposed would use methods based on other successful small-stream fish removal efforts (Kulp and Moore 2000, Shepard et al. 2001) and would be similar to the small-stream electrofishing methods used under other NSRP programs, and are briefly described as follows: Battery-powered backpack shockers are used to produce an electrical field in the stream that briefly stuns any fish nearby, these fish are then netted and stored in mobile net-pens located in the stream out of the electrical field. Various data would be collected from these fish and the non-native fish would be separated from the native fish for transport at the end of the day's electrofishing, while native fish would be released on site above a moveable weir that would separate these native fish from areas yet to be electrofished. Because electrofishing is not 100% effective at capturing fish, particularly fish smaller than 3 inches, an additional episode would be conducted later during the shocking period, which due to native species concerns is limited to mid-July through August, to capture any non-native fish that may have escaped the first effort. This alternative proposes two consecutive years of this effort, combined with the weir trapping at the downstream weir site, to help ensure that as many of the non-natives as possible are removed from the project area. Monitoring would be used to gauge the success of the removal, to quantify the response of the native species, as well as to assess the possible need for other removal efforts in future years (depending on results from the first two years, a third year of electrofishing removals may be conducted). A more specific description of the proposed methods employed, study area, and monitoring schedule is in this alternative's study plan (Lockard and Moran 2006), which is available upon request. This study plan also details the

criteria that would be used in judging the success of this alternative, and the experimental nature of this project, in terms of whether this alternative would proceed based upon meeting these criteria, is emphasized.

Advantages of this alternative are that the methods used are already in wide use throughout the project area and have been developed to minimize unintended fish mortality. The preferred alternative would complement other fishery conservation activities occurring on the EFBR, including stream habitat enhancement and protection activities, and adult and juvenile bull trout transport activities. Additionally, because this alternative would partially mitigate for any lost recreational fishing opportunities in the EFBR with an in kind (i.e. stream setting), and nearby release site, public support for this alternative was much greater. Finally, because one of the native species targeted to benefit under this alternative is federally listed as threatened (bull trout) every reasonable effort towards ensuring the long-term survival of this species is mandated under the ESA and state-wide management plans.

Although this preferred alternative has high probability for success in terms of reducing the numbers of non-native fish and their associated negative impacts on native species, shortcomings of this alternative exist. Foremost is that the EFBR has to remain open to provide access for migratory native species, so complete exclusion of the project area to non-native species (i.e. fish barrier construction) is not possible. Because of this, the removal efforts, if successful, would probably need to be continued on a varying schedule in response to non-native species re-colonization rates. However, it is anticipated that the accompanying increase in the abundance of the native species, combined with the continued, selective-passage operation of the weir located at the downstream end of the EFBR project area, would greatly reduce the rate of non-native species re-colonization. Regardless of re-colonization rates, this alternative represents a large commitment in terms of manpower and other resources.

It is anticipated that removal of brown and brook trout would result in a measurable increase in the EFBR bull and westslope cutthroat trout populations. The goal of this experiment (criteria for success) is a 90% reduction on non-native species in the lower East Fork Bull River following two years, or three if necessary, of intensive suppression activities. This reduction would be assessed by comparison of various fish population indices (i.e. numbers, density, biomass) before and after treatment. Other fish removal projects that used electrofishing found that numbers of 3 inch and larger westslope cutthroat trout increased from two (Shepard and Nelson 2001) to seven times (Shepard et al. 2001) in areas of two Montana streams following brook trout removal. As was seen in these and other electrofishing removal efforts (Kulp and Moore 2000), this project would undoubtedly require at least two successive years of successful electrofishing and weir operation to suppress the brown and brook trout to levels that would enable an increase in the existing bull and westslope cutthroat trout populations. Additional years of weir operation to limit brown and brook trout re-colonization, and monitoring electrofishing on the established monitoring sections to gauge success of removal efforts and response of the native species, would also be necessary. As has been the case in other removal efforts (Shepard et al. 2001) the native species' initial response would likely take several years to develop. Since the response of the native species in the EFBR is partially dependant on an increase in spawning of the late-maturing, migratory bull trout, complete assessment of this

project is likely to require a period of time equal to the life-cycle of migratory bull trout (i.e. seven years).

2.3 Opportunistic Suppression Alternative

This alternative would not use additional measures to capture brown and brook trout. However, all non-native fish captured under existing NSRP programs on the EFBR would be treated the same as those captured under the preferred alternative. For example, any non-native fish captured through the normal operation of the downstream juvenile bull trout transport program's weir on the lower EFBR, or the seven established electrofishing monitoring sections would be live-transported to the lower Bull River release site. This alternative could also incorporate recreational fishing as an additional means of opportunistic suppression. However a recent study (Paul et al. 2003) stated that three years of focused angler effort on brook trout was not successful in reducing overall brook trout numbers in a small Canadian Rocky Mountain stream that contained brook, westslope cutthroat and bull trout.

This alternative has the advantage of being relatively easy to implement, as it would just be a modification of existing fisheries programs, with the addition of live-transport for non-native fish as they are encountered. The fundamental shortcoming of this alternative is that the suppression would occur on such a limited scale that meaningful reduction of non-native fish would not take place. For these reasons adoption of opportunistic suppression for all existing NSRP projects as they applied to the EFBR, although considered, were not recommended.

2.4.1 Preferred Alternative in Alternate Areas

This alternative would incorporate the methods of the preferred alternative and apply them in an alternate area of the Cabinet Gorge project area; for example Rock Creek or the South Fork Bull River (SFBR). The major advantage of this alternative is the smaller size of these streams. This smaller size, particularly in terms of channel area would likely facilitate more efficient capture of non-natives by electrofishing efforts. An advantage of this alternative in terms of the SFBR is that this drainage has cooler maximum water temperatures than the lower EFBR (Katzman and Tholl 2003) and therefore represents a significant opportunity for native species to expand their current distribution within this drainage. The major disadvantage of this alternative for the SFBR is that current data suggests the bull trout population is small and appears to occupy only the lower portion of the drainage (Lockard et al. 2003, Katzman and Tholl 2003). Therefore, the potential benefit to bull trout would likely be limited compared to similar activities in the EFBR. Another disadvantage of the SFBR is that many of the same concerns raised with the preferred alternative (e.g.. possible loss of recreational fishing opportunities within the Bull River drainage) would merely be relocated to a different area of the Bull River drainage. At this time suppression activities would not be proposed for Rock Creek, as the majority of the bull trout appear to be separated from non-natives by a long stretch of seasonally dry stream channel.

2.5 Actions Considered but Not Selected as Possible Alternatives

2.5.1 Chemical Removal Alternative

This rejected action would have employed electrofishing methods similar to those described under the preferred alternative. The electrofishing would have been used to remove as many bull and westslope cutthroat trout as possible before treatment of the EFBR with a chemical piscicide. These removed native fish would have been kept alive on site, and following stream detoxification would have been released back to the EFBR. To mitigate for the impact to the recreational fishery, the brown and brook trout captured while electrofishing would have been transported, as would be the case under the preferred alternative. This rejected action would have used techniques that have been successfully used in other instances of non-native species removal and/or native species restoration (Gresswell 1991, Rinne and Turner 1991, Harig et al. 2000). Monitoring throughout the implementation of this alternative would have been used to gauge the success of the removal efforts as well as quantifying the accompanying response of the native species. A more specific description of the methods employed, study area, and monitoring schedule would have been addressed in this rejected alternative's study plan.

The major benefit of this rejected action is that this method has the possibility to kill 100 percent of the remaining non-native species within the section of stream treated with the piscicide. Therefore the resultant decrease in non-native species and the associated benefit to native species could have been even greater than those of the preferred alternative.

Although this rejected action had the possibility to provide a more complete removal of non-native species, this alternative would still have been subject to the same major disadvantage of the preferred alternative, namely that re-colonization would be likely due to the open nature of the system. In instances where the use of piscicides has proved successful, complete closure of the system due to natural or man-made fish barriers was an integral component of the program (Rinne and Turner 1991, Harig et al. 2000). This alternative would have had the further disadvantages of being much more difficult and expensive to implement. The reasons for this are that the piscicide itself is expensive, as well as the additional costs required for the labor needed for the removal and on site, live-storage of all native species encountered; including mountain whitefish, sculpins, and tailed frogs. In addition, the unintentional mortality of native species would undoubtedly have been much greater under this rejected alternative as some fish would have invariably escaped capture and would have been poisoned, as well as the mortality induced by the stress of additional handling and live-storage. Also it should be noted that while every precaution would have been taken, unintended consequences such as incomplete fish kill, or conversely, fish kills beyond the target area have been known to occur (Rinne and Turner 1991, Harig et al. 2000). Finally, the controversial nature of this method has often resulted in such strong public opposition that such projects have been either abandoned or excessively delayed. For these reasons this action is not presented as a possible alternative.

2.5.2 Preferred Alternative with a Triangle Pond release site

This previously recommended alternative (Moran 2003a) would have used the same removal methods described for the preferred alternative but would have differed in that brown and brook

trout captured in the EFBR would have been transported approximately seven miles for release at an established put-and-take trout pond fishery. Triangle Pond was selected as a release location because it was previously agreed upon by the fisheries biologists responsible for developing this alternative that a Bull River release site would likely have been incompatible with the goals of this alternative and with other ongoing NSRP programs (Moran 2003a). However, in light of a recently completed study which suggested that recolonization rates of the EFBR by transported brown trout released in the lower Bull River were lower than expected (Lockard and Carlson 2005), and a survey which found the lower Bull River dominated by non-native species (Moran in preparation), this alternative was superseded by the preferred alternative that employed the lower Bull River release site.

This rejected alternative shared the advantages of the preferred alternative such as the use of established and successful removal methods, which would provide the best opportunity to benefit the native species of the EFBR. An additional advantage of this alternative was that the Triangle Pond release site would have ensured that the catchable sized fish removed from the EFBR would not re-colonize the EFBR. The major disadvantage of this rejected alternative was that the transport of brown and brook trout to Triangle Pond did not mitigate for the lost recreational fishery for these fish with a nearby, and "in kind" (i.e. stream setting) recreational fishery, and was therefore not supported by private stakeholders.

3. ENVIRONMENTAL REVIEW OF THE PREFERRED ALTERATIVE

3.1 Physical Environment

Table 1. Potential Impact on the Physical Environment

	Impact Level					Attached Comments
	Major	Moderate	Minor	None	Unknown	
1. Land Resources			X			X
2. Air Resources				X		
3. Water Resources			X			X
4. Vegetation				X		
5. Fish/Wildlife	X					X

3.1.1 Land Resources

Weir traps have the potential for flow alteration and possible streambank erosion. However, current techniques such as sandbag armoring and frequent trap monitoring, along with the weir design that collapses under heavy flows have prevented undue streambank impacts for the numerous weirs that have been used throughout the project area.

3.1.2 Water Resources

There may be very small and local increases in suspended sediment due to fish trap installation and maintenance.

3.1.3 Fish/Wildlife Resources

The preferred alternative would greatly decrease brown and brook trout in the EFBR. The increased capture effort and associated increased handling may have a negative effect on native species as well. Any short-term negative impacts to native species should be more than offset by the long-term benefits of reduced competition, predation, and hybridization. Bull trout mortality is expected to be minimal as electrofishing and fish handling methods will follow guidelines developed by MFWP. Native westslope cutthroat trout should replace some of the removed non-native fish.

3.2 Human Environment

Table 2. Potential Impact on the Human Environment

	Impact Level					Attached Comments
	Major	Moderate	Minor	None	Unknown	
1. Noise/Electrical				X		
2. Land Use				X		
3. Risk/health Hazards				X		
4. Community/Local Economy			X			X
5. Recreation/Aesthetics			X			X

3.2.4 Community/Local Economy

Impacts to the community and local economy are expected to be positive. The importance of the additional jobs that Avista provided in fulfilling its licensing agreements has already been recognized by the local community (The Daily Bee 2001). Implementation of the proposed alternative could add as many as five additional seasonal employment opportunities to those currently provided by Avista.

3.2.5 Recreation/Aesthetics

The largest recreational impact would be on future fishing opportunities in the lower EFBR for the brown and brook trout targeted by the preferred alternative. To offset any short-term loss to the recreational fishery, the larger brown and brook trout removed from the project area would be transplanted to the lower Bull River. In addition it is anticipated that within a reasonable

period of time an increase in the lower EFBR westslope cutthroat trout population would offset recreational angling opportunities for non-natives species that would be lost in the lower EFBR.

4. CONCLUSION

Previous studies, as well as the need to facilitate successful implementation of ongoing efforts of the NSRP, necessitate that every effort should be undertaken to minimize the threat to native species currently posed by the non-natives species present in the EFBR. Furthermore, because one of the native species targeted to benefit under this alternative is federally listed as threatened (bull trout) every reasonable effort towards ensuring the long-term survival of this species is mandated under ESA and state-wide management plans. It is the position of the resource managers presenting this environmental assessment that the preferred alternative represents the best option for the suppression of these non-native salmonid species.

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ATTACHMENT A:

Summary of Data Requests from the 2003 Montana Fish, Wildlife and Parks' Decision Notice for Proposed Non-Native Fish Suppression Project in the East Fork Bull River

The following items (bolded) were identified as information needs in the 2003 MFWP Decision Notice. A summary response follows each bolded item and detailed information gathered for the response is available from Avista.

Item No. 1: Baseline Data Collection

Annually estimate fish abundance within the seven existing sections by electrofishing.

The purpose of this information request was to gather two more years (in addition to 2002) of baseline relative abundance fish population data. Since 2002, Avista and MFWP personnel have continued to conduct electrofishing population estimates along the seven monitoring sections of the East Fork Bull River. Figures depicting the percent composition of each species in the seven sections in 2002, 2003, and 2004 are presented in the revised "Proposed Non-Native Fish Suppression Project in the East Fork Bull River – 2006 through 2013". In summary, as indicated in 2002, bull trout continued to represent less than 20% of the trout population in the lower "suppression area" sections of the East Fork Bull River (EFBR) during the 2003 – 2004 time period. Both westslope cutthroat and brook trout populations decreased in percent composition in the 2003 – 2004 time period compared to their levels in 2002. The brown trout population increased in percent composition in the "suppression area" during the 2003 – 2004 time period compared to 2002.

Supplemental trend information (fish numbers) was gathered from Avista trapping operations conducted downstream of the seven monitoring sections near the mouth of the EFBR during a five year period, 2000 – 2004. Figures depicting trapping results are presented in the detailed and revised "proposed action" (available from Avista). This information cannot be quantitatively compared among years because of the many variables that affect stream trapping. However, trapping results give some indication of relative size of fish populations captured from the EFBR traps. Of interest, total native fish numbers for both bull and westslope cutthroat trout remained in the 10s of fish throughout the five year period, and non-native fish numbers for both brown and brook trout remained in the 100s of fish in the same period.

Conduct basin-wide brown and bull trout redd counts. Identify the extent and location of superimposition of brown trout redds on bull trout redds.

The purpose of this information request was to assess the occurrence of brown trout redd superimposition bull trout redds; detailed redd counts are documented in Avista documents and summarized in the "Brown Trout Exclusion Study – East Fork Bull River" (available from Avista). Brown trout spawn later in the season than bull trout and are known to spawn in similar locations and to use similar spawning habitat as bull trout. This can result in superimposition of

brown trout redds on redds previously constructed by bull trout. This superimposition can result in the destruction or modification of bull trout redds causing the loss of some bull trout reproductive effort. In the last four years, superimposition of brown trout redds has been documented in several drainages in the project area; Vermilion River (2001, through 2005), Prospect Creek (2002), Bull River (2002), and East Fork Bull River (2002).

In 2002, a total of 32 bull trout redds were counted in the East Fork Bull River (EFBR), of which 4 were later found superimposed with brown trout redds. In 2002, a total of 46 brown trout redds were counted in the East Fork Bull River. In 2003 and 2004, totals of 29 and 9 bull trout redds were counted and no instances of superimposition by brown trout redds were documented. In those years, 19 and 14 brown trout redds were counted, respectively. In both 2003 and 2004, brown trout access to most of the East Fork Bull River was blocked by weir traps (per the 2003 Decision Notice), resulting in a relatively low spawning effort by brown trout in areas of the EFBR located upstream of the weir traps. It should be noted that superimposition of brown trout redds on bull trout redds was observed in 2002 when both bull and brown trout redd counts were the highest recorded and in a location of spawning overlap (downstream of the confluence of Snake Creek). Since that time, the spawning effort of both species has been lower, especially by brown trout at locations upstream of weir traps that partially block their access to the EFBR. This suggests that exclusion of brown trout from the EFBR eliminates or reduces the incidence of redd superimposition.

In 2005, preliminary field data from Avista indicates that 10 bull trout redds and 29 brown trout redds were counted in the East Fork Bull River. Only three of the brown trout redds were located upstream of the weir traps and all the bull trout redds were located further upstream than the brown trout redds. The separation in spawning site locations and low spawning effort by both species (above the weir traps) may have prevented redd superimposition in 2005.

Collect and process in a timely manner genetic samples from any suspected bull trout x brook trout hybrids

The purpose of this information request was to determine the extent of hybridization between bull trout and brook trout; reports and correspondence from geneticists are summarized in the detailed and revised "Proposed Non-Native Fish Suppression Project in the East Fork Bull River – 2006 through 2013" (available from Avista). Hybridization of male brook trout with female bull trout is likely the greatest threat that this non-native species has on bull trout. Hybrids (based on phenotypic characteristics) of these species have recently been observed in the East Fork Bull River, Bull River, and Pilgrim Creek where the species coexist. Genetic analysis (available from Avista) has confirmed bull x brook trout hybridization in nearby South Fork Bull River (1 sample) (Pat DeHaan, personal communication, 2005), Swamp Creek (2 samples), Twin Creek, Idaho (12 samples).

Collect and process in a timely manner genetic samples it identify sculpin species in EFBR.

The purpose of this information request was to determine if the torrent sculpin *Cottus rhotheus* (a Montana "species of special concern", see below) was present in the East Fork Bull River. A final report, "Identification of Sculpins from East Fork Bull River, Montana, Based on

Morphological and Molecular Analysis" by Dr. David Neely, St. Louis University, details the analyses (available from Avista). All 20 sculpin samples collected from the East Fork Bull River in 2004 were identified as slimy sculpin *Cottus cognatus*, a common species in Montana and Idaho. Both morphology and molecular data (genetic analysis) supported this conclusion.

Conduct surveys to identify any potential species of special concern in EFBR.

The purpose of this information request was to identify certain animals and plants that may be present in the East Fork Bull River and determine if the proposed suppression project may affect them; detailed information is contained in a separate Avista file report. In summary, the following numbers of species are, or are suspected of being, present in the East Fork Bull River: 8 species of mammals, 13 species of birds, 3 species of amphibians and reptiles, 3 species of fish, no species of insects, and 26 species of plants.

Most of the animals that may be present, if disturbed by noise or human presence, would be mobile enough to avoid the action area and would likely not be affected by the proposed action (in-stream electrofishing activities). Possible exceptions could include: young harlequin ducks, boreal toads, and the fish species. These species would be avoided and/or moved from harms way during electrofishing activities. The revised proposed action describes measures that will be taken in avoid and minimize potential affects of electrofishing activities to the fish species. The torrent sculpin, a fish species previously thought to occupy the drainage, likely is not present in the East Fork Bull River, see the previous discussion of genetic identification of sculpin species in the East Fork Bull River. Of the 26 plant species, 5 are known to occur in the EFBR drainage, and one species, Beech Fern *Phegopteris connectilis*, is closely associated with streamside areas (no confirmation of presence exists for the other 21 species). Avista personnel involved in the proposed activities will be trained by a local botanist in the identification and occurrence locations of these plant species so that proposed activities avoid locations of these plants. The subject plant species would likely not be affected by the proposed action (access to the EFBR and in-stream electrofishing activities).

Item No. 2: Investigate Interspecific Predation and Competition

Collect data on food habits of brown and brook trout in the East Fork Bull River and Bull River to assess predation and competition. Use angler-caught fish when possible.

The purpose of this information request was to locally verify scientific literature that describes overlapping food habits of non-native brown and brook trout with native bull and westslope cutthroat trout. No formal investigations were initiated to address this information request because manpower and other resources were allocated to other Avista projects. However, some information from a Fishing Log (maintained for MFWP) is available. One fisherman fished the East Fork Bull River (EFBR) on 5 days between 2002 and 2005, catching a total of 4 brown trout and 1 brook trout. Only aquatic insects were identifiable from the stomachs that had contents. Although direct predation on native species was not confirmed, this small sample does highlight competition for food resources, as aquatic insects have been shown to comprise a majority of the diet for both juvenile bull trout and juvenile and adult westslope cutthroat trout. During the same time period, the same fisherman fished approximately 50 days

on the mainstem Bull River (upstream from the confluence of the EFBR), catching a total of 16 brown trout and 575 brook trout. All but one brown trout stomach and about one half of the brook trout stomachs were examined from this sample. One brook trout stomach contained a sculpin, several brook trout stomachs contained earthworms, but only aquatic insects were identifiable from all the other stomachs that had contents. As was observed from the much smaller sample of non-native stomach contents from the EFBR, the stomach contents from the non-natives captured in Bull River confirmed competition for food resources between non-natives and juvenile bull trout and juvenile and adult westslope cutthroat trout.

Collect data on food habits, abundance and distribution of northern pike and northern pikeminnow (formerly squawfish) in Bull River Bay to assess predation.

The purpose of this information request was to assess habitat overlap and potential predation on downstream migrating juvenile bull and westslope cutthroat trout at the confluence of the Bull River with Cabinet Gorge Reservoir. Two major radio telemetry field studies were conducted by Avista Corporation to address this information request (available from Avista). A goal of these studies was to determine the distribution and seasonal use of the Bull River Bay area by a known predator (northern pike) and a predator, to a lesser extent, (northern pikeminnow) of small trout. Northern pike were documented to seasonally concentrate in outer Bull River Bay, while northern pikeminnow were generally distributed throughout the reservoir following an early summer spawning migration upstream to Noxon Rapids Dam. Limited food habit information was incidentally collected which confirmed that northern pike prey on fish (no bull or westslope cutthroat trout were found in the few stomachs examined).

Item No. 3. Test Suppression Techniques

Test effectiveness of juvenile fish traps in EFBR. Juvenile brown and brook trout captured would be removed.

The purpose of this information request was to determine if juvenile salmonid trapping methods used in other locations would be effective in capturing juvenile brown and brook trout. A special study (available from Avista), was completed by Avista to assess the potential of this method in suppression actions, "Experimental Two-Liter Plastic Bottle Juvenile Trapping of the East Fork Bull River". The method was successful in capturing the target species, however, because of its inefficiency the method would require a prohibitively large amount of manpower to implement as a suppression technique.

Brook trout encountered during other management activities such as population estimates within the 1.8 mile section of EFBR may be opportunistically removed in 2004 to measure the population response to low level suppression.

The purpose of this information request was to assess whether small-scale removal of brook trout could affect their local population numbers. Avista and MFWP personnel continued to conduct electrofishing population estimates for brook trout (as well as bull, westslope cutthroat, and brown trout) in the seven monitoring sections of the East Fork Bull River. Figures depicting the percent composition of each species in the seven sections in 2002, 2003, and 2004 are

presented in the revised "Proposed Non-Native Fish Suppression Project in the East Fork Bull River – 2006 through 2013". In the three years of population estimates, brook trout numbers were lowest in 2004 in the four population estimate sections located in the "suppression area". Brook trout were removed during the 2004 electrofishing; and data from the 2005 sampling of these sections (see Figure 2 above, from Moran in preparation) showed that brook trout formed a *larger* percentage of the total trout population in each section of the lower EFBR where brook trout were common. Therefore it would appear that the limited scope (i.e. four roughly 110 yard long sections out of nearly two miles of stream) and or limited amount of time (one 2-pass population estimation effort conducted in August, 2004) in which this "opportunistic suppression" was conducted was insufficient to effect a decrease in the brook trout population of the lower EFBR.

Migratory brown and brook trout would not be allowed to pass upstream over the lower weir. A sub-sample of brown trout would be radio tagged and released downstream of the weir.

The purpose of this information request was to determine if the weirs currently used in the East Fork Bull River (EFBR) could be used to exclude brown and brook trout from accessing upstream reaches of the stream. To answer this question 38 brown trout that were captured moving upstream at the EBFR weir trap were radio tagged and released either below the weir, or at two locations downstream on the Bull River, and the movements of these fish were recorded; see the report, "Brown Trout Exclusion Study – East Fork Bull River" (available from Avista). Results of this study showed that brown trout captured at the weir traps and released in downstream reaches of the Bull River tended to spawn in the mainstem Bull River and not return to the East Fork Bull River. Results also suggest that brown trout released directly below the weir trap sites tended to spawn in reaches of the East Fork Bull River between the weirs and the confluence with the Bull River. This study also found that a small percentage of these brown trout attempted to ascend the EFBR and that an even smaller percentage were documented to have passed upstream of the weir traps during periods of high stream flow when the weirs were not functioning as barriers to upstream fish movement. Brown trout redd count information from the 2002 to 2005 period suggests the weirs presented a partial barrier, as brown trout redd counts were lower in the three years (2003 – 2005) of exclusion.

Item No. 4. Test Recreational Fishing Mitigation Proposals.

Capture and radio tag 20 adult brown trout in each of 2003 and 2004. Ten would be released below the weir and ten would be released at Mile Marker 3 on the main stem Bull River to monitor movement and habitat utilization.

The purpose of this information request was to assess potential effects on the recreational fishery of removing spawning brown trout from the East Fork Bull River (EFBR). This was accomplished by documenting fish movements in the Bull River drainage and Cabinet Gorge Reservoir following capture in the EFBR and release on site or release at a downstream site in the Bull River. Avista conducted a major radio telemetry study (available separately) to assess these effects, "Brown Trout Exclusion Study – East Fork Bull River". Results suggested that brown trout captured during spawning movements in the EFBR likely resided in the mainstem

Bull River prior to entering the EFBR. Radio-tagged brown trout were located in the post-spawning period throughout the Bull River, both upstream and downstream of the confluence of the EFBR. For the 2000 through 2004 time period, the average annual number of brown trout that would likely survive spawning and could possibly be available for the next summer's Bull River fishery was estimated to be about one per kilometer of river (26 adult brown trout). If a suppression program is approved, the same number of brown trout could be available to anglers in the lower Bull River.

Investigate potential projects to enhance fishing opportunities in the Bull River drainage, both instream and off stream.

The primary purpose of this information request was to provide a feasibility assessment of potential recreational fishery projects near the proposed suppression project area that could be used to mitigate for any lost fishing opportunities in the Bull River drainage due to the proposed EFBR non-native suppression project.

There is potential to enhance fishing opportunities in the Bull River drainage through manipulation of the fishing regulations, or through instream opportunities to enhance fishing opportunities such as the provision of new or improved fishing access sites, and habitat improvement projects. The scope of these types of projects is likely beyond that called for to provide mitigation for the potentially impacted fisheries in the East Fork Bull River and Bull River.

A specific investigation of off-stream projects to enhance fishing opportunities was completed (available from Avista). That study identified three locations in the Bull River drainage that may be suitable for management of small artificially stocked pond fisheries. Two of the off-stream projects consist of opportunities to create small "fishing ponds" at locations approximately 9 to 10 road miles from the EFBR non-native fish suppression project area. The third off-stream project consists of an opportunity to enhance fishing access and fishing at an existing large pond approximately two miles from the EFBR project site. Each site was examined for land ownership, access, management compatibility, needed developments, estimated cost, and potential fishery management issues. Due to the projected low level of potential impact to the affected fisheries, no off-site mitigation projects are being proposed as part of the preferred alternative.

ATTACHMENT B:

Answers to Frequently Asked Questions

1. Based on the potential environmental impacts evaluated in this EA, is an EIS required?

The preferred alternative would impact a small (approximately 1.8 miles) area of the EFBR. The environmental impact of the preferred alternative is expected to be positive for the threatened bull trout and native westslope cutthroat trout. The negative impacts are intentional and are focused on the brown and brook trout presently believed to be inhibiting fulfillment of the mandated NSRP. The environmental effects of the NSRP, which shares a majority of possible impacts with this proposal, have already been considered in a previous EIS (FERC 2000).

2. Describe the level of public involvement for this project, if any, and given the possibility of recreational impacts, has the level of public involvement been appropriate under the circumstances?

The level of public involvement for this project has been high. An environmental assessment was issued in 2003 and public meetings were conducted. The 2003 Decision Notice responded to public concerns by identifying major objections to the originally proposed project and by requiring additional baseline studies. The revised proposed action, preferred alternative in this environmental assessment, was developed in consultation with Stakeholders. Every effort has, and will be continue to be made by the agencies involved in implementation to present the public with the possible benefits and impacts of the proposed alternatives, as well as to incorporate the public's concerns, to the greatest extent possible, for the alternative that may be selected. The opportunities for public input will consist of public notification of the availability of this environmental assessment through mailings and news releases, establishing at least a 30 day comment period where concerned citizens can comment on the environmental assessment, a forum-type public meeting where specific questions concerning the methods and proposed alternatives can be addressed, and a final decision notice identifying the alternative selected with a discussion of the public issues raised.

3. Given the implementation of other fishery-enhancement programs for the EFBR, is non-native species suppression necessary, and if so how will success be attributed to this one proposed component?

The other fishery enhancement programs currently affecting the EFBR are characterized under two approaches: habitat improvement, and an effort to increase the bull trout population through fish passage activities. As mentioned in the introduction, competition, predation, and potential hybridization by non-native species have been identified as major threats to the native

species (bull and westslope cutthroat trout) throughout the project area. The habitat improvements efforts for the EFBR drainage are limited in scale and are not species specific, as a result they will likely be limited in directly affecting non-native fish species. It is hoped that the additional spawning bull trout contribution from those fish passed over Cabinet Gorge Dam will increase this species' population; although this program in itself does not address the competition, predation, and hybridization concerns, and in fact may be depend upon the removal of competing species to prove successful.

Initial success of the suppression effort will be measured in the reduction of brown and brook trout. Ultimately, success will be assessed by a relative increase in the abundance of native fish. While the exact contribution of suppression efforts to any increase in native species' abundance may be difficult to determine, an approximation should be possible by estimating the contribution of the other, ongoing enhancement efforts. In part, because the absolute contribution of any of the activities would be difficult to accurately define, the proposed suppression program should not be considered so much as a rigorously defined scientific experiment as it is an experimental component of a suite of management activities. The criteria of a significant reduction in brown and brook trout and an accompanying increase in westslope cutthroat and bull trout would be used to judge the success of this project. The experimental nature of this project, in terms of whether the project would proceed based upon meeting these criteria, is evident in that if this project was judged unsuccessful, suppression efforts would stop and the continuation of the project would be reexamined.

4. Will there soon be another proposal for non-native species suppression in other areas such as the mainstem Bull River or Noxon Rapids Reservoir?

Presently, there are no plans for future proposals to perform suppression efforts in the mainstem Bull River, or Cabinet Gorge or Noxon Rapids Reservoirs. The proposed project is an attempt to determine if suppressing non-native brook and brown trout can increase the abundance and distribution of native bull and westslope cutthroat trout in the EFBR. If the project is successful, there may be future proposals for non-native species suppression in other areas suitable to the suppression techniques such as the South Fork Bull River. It should be emphasized that any future proposals to conduct non-native species suppression would go through a similar MEPA process, which includes a period for public input.

5. Even if suppression efforts prove successful, won't the non-native species re-colonize?

Due to the necessarily open nature of the EFBR (to provide passage for migratory native fish), non-native species re-colonization is expected to occur on a limited basis, and is a major reason why this proposal is termed a suppression program. However, the commitment of this project (provided meaningful suppression is achieved), in terms of the follow-up efforts scheduled under the preferred alternative, should greatly reduce the rate and impact of any future re-colonization. Furthermore it is anticipated that the continued, selective-passage operation of the weir located near the bottom of the EFBR, would greatly reduce the rate of non-native species re-colonization.

6. How would angling opportunity be impacted, and how do you propose to mitigate for this loss?

Angling opportunity lost due to the preferred alternative would be largely confined to the fishery for brown and brook trout of the lower 1.8 miles of the EFBR. Overall impacts to angling opportunities should not be considered excessive for the following reasons: 1) the suppression activities would largely occur along a remote reach of the EFBR that is bordered in part by private land and represents less than half of the length of the EFBR available for fishing; 2) angling opportunities would still be available for westslope cutthroat trout on the EFBR, and this fishery would likely improve; and 3) the impact of this effort to other angling opportunities in the Bull River drainage is likely to be minimal and would be offset by the use of the lower Bull River release site for fish removed from the EFBR.

7. Wouldn't a change in fishing regulations suppress the non-native fish?

This would likely not be effective for the following reasons: 1) the area of greatest non-native species concentration occurs in a difficult to access area that is bordered in part by private land and therefore receives very little fishing pressure; 2) the reduction of non-native species under any foreseeable level of angler harvest would be insufficient to alleviate the impacts these species have on native species; and 3) angling harvest generally only targets fish that are 6 inches or greater in length, and some negative impacts, such as competition at the juvenile life-stage, has already occurred by the time the fish have reached that size.

8. Wouldn't the presence of these same non-native (and other competing or predatory) species throughout the project area nullify any successful non-native species suppression activities on the EFBR?

The presence of the same non-native species targeted for suppression on the EFBR and other competing or predatory species throughout the project area is a concern. However, these impacts are not envisioned to be of such a magnitude as to completely nullify the suppression process as presented under the preferred alternative. This is primarily due to the commitment of continued weir operation, and the use of monitoring and follow-up suppression electrofishing to lessen non-native species re-colonization of the EFBR. In addition the continuation of other NSRP programs, especially the downstream juvenile bull trout transport program, is intended to mitigate the impacts of competing and predatory species throughout the project area.

9. I like to fish for brown, brook and rainbow trout. Why are you targeting these species for suppression?

Brown, brook and rainbow trout are indeed popular game fish. That is the reason why these species were introduced across much of the state. Management for these species will continue where appropriate. At the same time, these species became established at the expense of our

native fish. We need to conserve native fish species because they are a part of our natural heritage and because it is our responsibility as resource managers.

10. Why are you going through with this public comment/input process? Haven't you already made up your mind what you are going to do? What if the public votes against this project?

The MEPA process has two purposes: 1) to fully disclose the consequences of a proposed action, and 2) to allow public input into the process. The resource managers involved in presenting this proposal believe there are compelling reasons to proceed with this proposal. At the same time, many projects are modified or halted as a result of MEPA.

The MEPA process is not a vote on the acceptance of a particular project. Sometimes other obligations demand a project move forward despite a lack of public support. That being said, an overall strong opposition will usually prompt the resource managers to rethink a project. MEPA is not a decision making process in itself, but instead represents a systematic way to register consequences of and concerns about an action. The best kind of public input does not just register yes or no, but instead points out weak and strong points and missing issues of an action.

Public input will be considered and discussed in the decision notice. MFWP Regional Supervisor Jim Satterfield will sign the decision notice and the notice will be distributed publicly.